

Translation

PATENT COOPERATION TREATY
PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference R 03053	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/FR2004/001159	International filing date (day/month/year) 12.05.2004	Priority date (day/month/year) 15.05.2003	
International Patent Classification (IPC) or national classification and IPC C07C251/86, C07C241/02, C07C243/10, C07C249/16			
Applicant RHODIA CHIMIE			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of _____ sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/FR2004/001159

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:

international search (Rule 12.3 and 23.1(b))
 publication of the international application (Rule 12.4)
 international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

the international application as originally filed/furnished
 the description:
 pages 1-38 as originally filed/furnished
 pages* _____ received by this Authority on _____
 pages* _____ received by this Authority on _____

the claims:
 nos. 1-46 as originally filed/furnished
 nos.* _____ as amended (together with any statement) under Article 19
 nos.* _____ received by this Authority on _____
 nos.* _____ received by this Authority on _____

the drawings:
 sheets _____ as originally filed/furnished
 sheets* _____ received by this Authority on _____
 sheets* _____ received by this Authority on _____

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. The amendments have resulted in the cancellation of:

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (specify): _____
 any table(s) related to sequence listing (specify): _____

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____
 the claims, nos. _____
 the drawings, sheets/figs _____
 the sequence listing (specify): _____
 any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

the entire international application

claims Nos. 1, 2

because:

the said international application, or the said claims Nos. _____ relate to the following subject matter which does not require an international preliminary examination (specify):

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. _____ are so unclear that no meaningful opinion could be formed (specify):

the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed.

no international search report has been established for said claims Nos. 1, 2

the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

has not been furnished
 does not comply with the standard

the computer readable form

has not been furnished
 does not comply with the standard

the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

See Supplemental Box for further details.

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3-46	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	3-46	NO
Industrial applicability (IA)	Claims	3-46	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The present application relates to a method for creating a carbon-heteroatom bond by reacting an unsaturated compound having a leaving group and a nucleophilic compound having one heteroatom (in particular amine, hydrazine or hydrazone arylation), in the presence of a Group VIII catalyst, a metal hydroxide base and an alcohol solvent.

D1 discloses an amine arylation method using a Group VIII metal catalyst (Pd), wherein the use of an alkali hydroxide base and an alcohol solvent is manifestly envisaged (see column 3, line 8 to column 4, line 52 and column 6, lines 27 to 29).

While it is true that the examples of D1 only describe the use of toluene as solvent and carbonates as base, D1 nevertheless clearly teaches that the use of the reaction medium containing a metal hydroxide in alcohol is a credible alternative method.

For this reason, although novelty over D1 may be granted, a person skilled in the art has sufficient indication in D1 (possibly combined with D3 or D5; see below) to arrive at the present application *without exercising inventive*

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

skill, in so far as the technical problem addressed is that of obtaining an alternative method to that of D1. Indeed, D3 and D5 also use a metal hydroxide in alcohol as base, whether in the presence of a catalyst or not, for the same type of reaction.

D2 discloses an arylation method for preparing hydrazone and hydrazone, in which a Group VIII metal (Pd) and a base (alkali hydroxide envisaged, NaOtBu in the example) are used, but alcohol as solvent appears to be excluded (toluene).

D3: Creation of a carbon-sulphur bond, without a catalyst but in the presence of KOH in ethanol.

D4: solvent = toluene and base = caesium carbonate.

D5: production method having the same scope as the present application, but using copper as catalyst. Use of Alcohol/OH-.